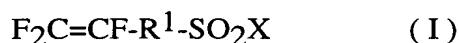


We claim:

1. A method of aqueous emulsion polymerization of two or more fluoromonomers comprising the steps of:

1) forming a pre-emulsion by mixing, a fluoromonomer according to formula I:



wherein R^1 is a branched or unbranched perfluoroalkyl, perfluoroalkoxy or perfluoroether group comprising 1-15 carbon atoms and 0-4 oxygen atoms and wherein X is F, Cl or Br, together with 0.001-0.9 molar equivalents of a base, in the absence of added emulsifier; and

2) reacting said pre-emulsion with one or more comonomers in the absence of added emulsifier, said comonomers being perfluorinated, so as to form a fluoropolymer latex comprising a fluoropolymer wherein more than 1 mol% of monomer units are derived from the fluoromonomer according to formula I.

2. The method according to claim 1 wherein said fluoropolymer dispersion comprises a fluoropolymer wherein more than 5 mol% of monomer units are derived from the fluoromonomer according to formula I.

3. The method according to claim 1 wherein said fluoropolymer latex comprises a fluoropolymer wherein more than 10 mol% of monomer units are derived from the fluoromonomer according to formula I.

4. The method according to claim 1 wherein said base is a hydroxide.

5. The method according to claim 1 wherein R^1 is $-\text{O}-\text{R}^2-$ wherein R^2 is a branched or unbranched perfluoroalkyl or perfluoroether group comprising 1-15 carbon atoms and 0-4 oxygen atoms, and wherein X is F.

6. The method according to claim 1 wherein R^1 is $-\text{O}-\text{R}^3-$ wherein R^3 is a perfluoroalkyl group comprising 1-15 carbon atoms, and wherein X is F.

7. The method according to claim 1 wherein R^1 is $-O-CF_2CF_2CF_2CF_2-$ and X is F.

8. The method according to claim 2 wherein R^1 is $-O-CF_2CF_2CF_2CF_2-$ and X is F.

9. The method according to claim 3 wherein R^1 is $-O-CF_2CF_2CF_2CF_2-$ and X is F.

10. The method according to claim 1 wherein R^1 is $-O-CF_2-CF(CF_3)-O-CF_2-CF_2-$ and X is F.

11. The method according to claim 2 wherein R^1 is $-O-CF_2-CF(CF_3)-O-CF_2-CF_2-$ and X is F.

12. The method according to claim 3 wherein R^1 is $-O-CF_2-CF(CF_3)-O-CF_2-CF_2-$ and X is F.

13. The method according to claim 1 wherein said preemulsion additionally comprises one or more fluorinated vinyl ether comonomer.

14. The method according to claim 13 wherein said fluorinated vinyl ether comonomer is a monomer according to formula (III):



where R_f and R'_f are independently selected from the group consisting of linear and branched perfluoroalkylene groups of 2 – 6 carbon atoms, where m is 0-10, where n is 0-10, where the sum of n and m is at least 1, and where R''_f is a perfluoroalkyl group of 1 – 6 carbon atoms.

15. The method according to claim 1 wherein said comonomers include non-perfluorinated comonomers.

16. A fluoropolymer latex made according to the method of claim 1, said
5 fluoropolymer latex being free of added emulsifier.

17. The fluoropolymer latex according to claim 16 comprising a fluoropolymer wherein more than 5 mol% of monomer units are derived from the fluoromonomer according to formula I.

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18. The fluoropolymer latex according to claim 16 comprising a fluoropolymer wherein more than 10 mol% of monomer units are derived from the fluoromonomer according to formula I.

15 19. The fluoropolymer latex according to claim 16 wherein R^1 is -O-CF₂CF₂CF₂CF₂- and X is F.

20. The fluoropolymer latex according to claim 17 wherein R^1 is -O-CF₂CF₂CF₂CF₂- and X is F.

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21. The fluoropolymer latex according to claim 18 wherein R^1 is -O-CF₂CF₂CF₂CF₂- and X is F.

22. The fluoropolymer latex according to claim 16 wherein R^1 is -O-CF₂-CF(CF₃)-
25 O-CF₂-CF₂- and X is F.

23. The fluoropolymer latex according to claim 17 wherein R^1 is -O-CF₂-CF(CF₃)-
O-CF₂-CF₂- and X is F.

24. The fluoropolymer latex according to claim 18 wherein R^1 is $-O-CF_2-CF(CF_3)-O-CF_2-CF_2-$ and X is F.

25. A fluoropolymer derived from a fluoropolymer latex made according to the
5 method of claim 1, said fluoropolymer being free of added emulsifier.

26. The fluoropolymer according to claim 25, wherein said fluoropolymer latex
comprises a fluoropolymer wherein more than 5 mol% of monomer units are derived
from the fluoromonomer according to formula I.

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27. The fluoropolymer according to claim 25, wherein said fluoropolymer latex
comprises a fluoropolymer wherein more than 10 mol% of monomer units are derived
from the fluoromonomer according to formula I.

15 28. The fluoropolymer according to claim 25 wherein R^1 is $-O-CF_2CF_2CF_2CF_2-$
and X is F.

29. The fluoropolymer according to claim 26 wherein R^1 is $-O-CF_2CF_2CF_2CF_2-$
and X is F.

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30. The fluoropolymer according to claim 27 wherein R^1 is $-O-CF_2CF_2CF_2CF_2-$
and X is F.

31. The fluoropolymer according to claim 25 wherein R^1 is $-O-CF_2-CF(CF_3)-O-$
25 CF_2-CF_2- and X is F.

32. The fluoropolymer according to claim 26 wherein R^1 is $-O-CF_2-CF(CF_3)-O-$
 CF_2-CF_2- and X is F.

33. The fluoropolymer according to claim 27 wherein R¹ is -O-CF₂-CF(CF₃)-O-CF₂-CF₂- and X is F.

34. A polymer electrolyte membrane comprising the fluoropolymer of claim 25 which has been hydrolyzed.

35. A polymer electrolyte membrane comprising the fluoropolymer of claim 26 which has been hydrolyzed.

36. A polymer electrolyte membrane comprising the fluoropolymer of claim 27 which has been hydrolyzed.

37. A polymer electrolyte membrane comprising the fluoropolymer of claim 28 which has been hydrolyzed.

38. A polymer electrolyte membrane comprising the fluoropolymer of claim 29 which has been hydrolyzed.

39. A polymer electrolyte membrane comprising the fluoropolymer of claim 30 which has been hydrolyzed.

40. A polymer electrolyte membrane comprising the fluoropolymer of claim 31 which has been hydrolyzed.

41. A polymer electrolyte membrane comprising the fluoropolymer of claim 32 which has been hydrolyzed.

42. A polymer electrolyte membrane comprising the fluoropolymer of claim 33 which has been hydrolyzed.